

New Species of Lyonetiidae (Microlepidoptera).

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The types of these new species are in the writer's collection. Paratypes of *Bucculatrix errans* and of *Coptodisca negligens* will be placed in the collection of the Academy of Natural Sciences of Philadelphia.

Bucculatrix fusicola n. sp.

Head white, occasionally a few fuscous scales in the middle of the tuft; antennae white, shading to pale fuscous toward the tips.

Thorax and fore wings pure white, the wings marked with ochreous streaks, which are sometimes slightly dusted with brown. There is a median streak from base, often faint in the male; an oblique streak from middle of costa, soon bending to become parallel with the median streak (part near costa usually obsolete in female); a second, straight and less oblique brownish costal streak passing across the wing and meeting on the termen the end of a line of black scales which extends along the termen to the apex; beyond the second costal streak a patch of slightly dusted ochreous scales whose inner edge is parallel with the second costal streak and nearer to it than the second is to the first costal streak; a faint ochreous streak along the dorsum is deflexed beyond the middle and passes obliquely upward joining the second costal streak; a line of black scales in the cilia from apex to tornus diverges slightly from the line bordering termen. Hind wings pale grayish ochreous in male, fuscous in female.

Legs whitish, tips of tarsal segments spotted with black in female. Expanse: 12 mm.

Type (♀), reared from a spindle-shaped gall on stem of *Helianthus trachelifolius* at Cincinnati, Ohio; in addition to the type, a large series of captured specimens, taken in patches of this species of sunflower.

The gall is usually situated toward the upper part of the stem and averages about 2 cm. in length, with a greatest diameter of .5 cm. The cavity in the gall within which the larva feeds, is of about the same proportions. The larva finishes eating in the latter part of September, but remains in the gall throughout the winter, escaping in the spring through a minute circular aperture. The cocoon is dark brownish fuscous, *smooth* and flattened, and closely appressed to the surface on which it is spun, resembling not at all the usual *Bucculatrix* cocoon. The imagoes appear from the end

of May to early July. Apart from the anomalous habits of the larva and peculiar cocoon, this species shows no divergence from the usual *Bucculatrix* type.

This species is closely related to Chamber's *B. magnella* and has been known as that species in some collections. There are several large species of this general appearance, of which the species described below is one.

***Bucculatrix montana* n. sp.**

Head white, with a few fuscous hairs in the tuft; antennal stalk pale fuscous.

Thorax and fore wings shining white; three equally spaced oblique and parallel ochreous-dusted costal streaks, the first before the middle bending below costa to join the second, which runs into some pale dusting on the termen, the third the broadest. From just before apex a brown streak runs to tip of apical cilia and is met at about half its length by a line of dusting extending through the middle of terminal cilia; a curved dorsal streak just beyond middle of wing bends backward along the fold. Hind wings pale grayish ochreous.

Legs pale whitish ochreous, with the tips of tarsi darker. Abdomen ochreous, fuscous toward tip above. Expanse: 11 mm.

Type (♂), Mountain Lake, Virginia, June 18.

The specimen emerged from a rather large cocoon of the usual *Bucculatrix* type; food plant unknown.

***Bucculatrix errans* n. sp.**

Face and head pure white, middle of tuft dark brown; antennal stalk brown, becoming paler toward tip.

Thorax white. Fore wings dark brown; just within the costa, a broad white streak from base, broadening outwardly, shortest along the costa and prolonged on the disk nearly to the middle of the wing; base of wing below the fold white, this white sometimes increased in extent to occupy the entire base of dorsum when it is then connected at the base with the aforesaid white streak; just below the middle a curved white costal streak, and a little nearer the base a large half-crescent-shaped dorsal streak; a narrow costal streak at two-thirds and opposite it at the tornus a pair of white spots of which the posterior one points inwardly; a triangular white spot in costal cilia at apex, bordered outwardly by an oblique line running out into the cilia; a line of dark scales through middle of cilia to tornus. Occasionally the white marks are so increased in extent that the apices of the spots and streaks in the basal half of the wing coalesce. Hind wings and cilia dark brownish gray.

Legs except tarsi dark brown outwardly; abdomen dark brown. Expanse: 10-10.5 mm.

The type series was reared from larvae feeding on *Aster shortii* at Cincinnati, Ohio. The larva makes a long, transparent, linear, contorted and sometimes spiral mine in the leaves in the autumn. In early November, in a slight enlargement at the end of the mine, the larva spins a flat, yellow, circular, wintering cocoon, similar in appearance to the moulting cocoon, but of denser texture, within which it lies curled during the winter. In March of the following year, it leaves this cocoon by a circular opening, and bores into a growing shoot just below the growing tip, hollowing out the stem, so that the tip of the shoot dies. It feeds downward, usually eating out the whole contents of the stem for about an inch; when full grown it escapes by a circular hole near the lowest part of the burrow. Larva yellowish white, with two black spots on dorsum of first thoracic segment; head yellowish. The white or pale yellowish cocoon, which is of the usual *Bucculatrix* type, with a series of slightly raised longitudinal ridges, is spun on dead stems or twigs lying near the food plant, but apparently never on the food plant. Imagoes in the latter part of May.

Although the mines are present in immense numbers on the leaves in the fall, probably not more than one per cent of the larvae reach maturity.

***Tischeria nubila* n. sp.**

Face and head whitish straw-colored with a few fuscous scales on the sides behind; antennae whitish, in male fuscous beneath.

Thorax darker, on the sides more ochereous than the head; fore wings with the ground color sulphur yellow, the color deepening on the margins and in the apical fourth to reddish or brownish ochereous; on these darkened areas there is scattered dark dusting, which usually forms a distinct dark line at the base of the cilia around the apex and a rather large dark spot at the tornus, and follows the dorsal margin to the base; under side of base of costa of male fuscous. Hind wings pale ochereous, slightly deeper at apex.

Legs ochereous dusted with fuscous outwardly. Expanse: 7.5 mm.

Type (♂), and seven paratypes reared from larvae mining leaves of white oak, *Quercus alba*, at Winnfield, Louisiana, (collected by G. R. Pilate). The mine is variously placed on the leaf, always elongate, with epidermis wrinkled and torn

ta pupation much as in *Coptotriche*. Mines received early in May produced imagoes during the latter half of that month.

This species is similar to *T. badiella* in distribution of dark dusting, but the ground color is deeper and the base of the costa of the hind wing of the male is not thickened with dark fuscous scales as in that species.

***Coptodisca negligens* n. sp.**

Face and head pale leaden metallic; antennae blackish.

Thorax and basal half of fore wings pale leaden metallic; apical half or more of wing bright orange yellow; the silvery costal and dorsal streaks at the apical third nearly opposite, of about equal size, their apices usually separated by the yellow ground color, rarely with their internal dark margins confluent. The outer dark margin of the dorsal spot forms part of the dark patch of scales which extends from it to the dorsum and termen, but is separated from the costal streak and apical dark patch by the orange yellow color. A perpendicular dark streak in the costal cilia beyond the costal silvery streak. Apical dark patch preceded by a minute silvery spot and broadly bordered on either side with silvery scales; from it a black pencil extends into the apical pale gray cilia. Hind wings gray.

Legs silvery gray, tarsi fuscous. Expanse: 4-4.5 mm.

The type series, consisting of 55 specimens, was reared from mines on leaves of cranberry, *Oxycoccus macrocarpon*, from Cranberry Island, Buckeye Lake, Ohio. The species is peculiar in the genus in that it is single brooded: the cranberry plant from which the mines were obtained was brought from Cranberry Island about August 5, and there were at that time no mined leaves on the plant. Early the following spring the majority of the overwintering leaves were observed to be affected, a single leaf containing sometimes four or five mines. The mine is of the usual type; the pupal case is cut lengthwise in one-half the leaf and when completed measures 1 by 2.5 mm. The larvae were full grown early in May and produced moths during the first half of June. The moth apparently deposits its eggs on the leaves of the new growth, to remain without hatching until the following spring. The mined leaves of the preceding year's growth are lost early in the season.

This species is distinguished from others of the genus by the brighter orange color of the apical half of the wing. *C.*